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A New Species of the Genus *Cyobius* (Coleoptera, Scarabaeidae, Onthophagini) from Borneo

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Abstract A new species of *Cyobius* (Onthophagini) is described from Sabah, Borneo under the name of *C. cheyi* sp. nov. The present new species is a second member for this genus and distinguished from *C. wallacei*, the type species of *Cyobius*, by having the elytra shorter than the pronotum.

Sharp (1875) established *Cyobius*, a monotypical genus of Scarabaeidae, and described *C. wallacei* as the type species based on a unique specimen collected by A. R. Wallace from Sarawak, Borneo. Later, Balthasar (1963 b) assigned this genus to the tribe Onthophagini, and Krikken (1971) revised the definition of *Cyobius* in comparison with the related genus *Anoctus*. Furthermore, Ochi *et al.* (1996) redefined the genera *Cyobius* and *Anoctus* in a key to the genera of Onthophagini from Borneo.

Recently, one of the authors (Kashizaki) has collected a peculiar-formed scarab beetle having the reduced tarsi by a flight intercept trap installed in a lowland forest of Gomantong near Sandakan, Sabah, Borneo. According to Ochi *et al.* (1996), we assigned it to the genus *Cyobius*. After a comparison with *C. wallacei*, we concluded that this form is new to science. Thus, we describe a new species of *Cyobius* from Borneo as a second member for this genus. In addition, we provide a revised key to the genera of the tribe Onthophagini from Borneo.

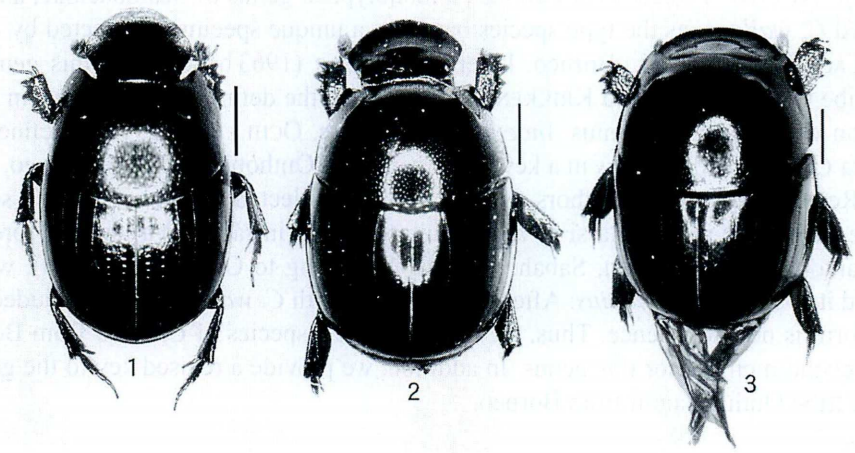
Key to the Genera of the Onthophagini from Borneo

1(2) Elytron with epipleura relatively broad, clearly continuous with ventral side, and distinctly defined from dorsal side by an acute edge. Pronotum and elytron with lateral margins perfectly or almost continuous in lateral view. Body strongly polished, entirely to almost glabrous on dorsal side, without constriction between pronotum and elytra. Elytron without distinct humeral callus; intervals entirely flat. Prothorax with anterior angle deeply and widely excavated on ventral side, the excavation clearly deepened even along lateral margins. 3

2(1) Elytron with epipleura relatively narrow, neither clearly continuous with ventral side, nor distinctly defined from dorsal side. Pronotum and elytron with lateral margins not continuous in lateral view. Body polished to opaque, glabrous to distinctly hairy on dorsal side, with deep constrictions between pronotum and elytra. Elytron with a distinct humeral callus; intervals convex to flat, with the 8th convex basally. Prothorax with anterior angle deeply to not entirely excavated on ventral side. 5

3(4) All femora and tibiae strongly dilated and plate-shaped; meso- and metafemora almost sub-circular in outline; meso- and metatarsi with four distal segments reduced and very small. Protibia with distal end almost straightly truncated and slightly swollen in the middle. Pronotum and elytron with lateral margins perfectly continuous in lateral view. . . . . *Cyobius* SHARP

4(3) All femora and tibiae ordinary, neither strongly dilated nor plate-shaped; meso- and metafemora ordinary in outline; meso- and metatarsi with four distal segments ordinary, neither reduced nor very small. Protibia with distal end



Figs. 1–3. Habitus, scale 1 mm. —— 1, *Anoctus laevis* SHARP; 2, *Cyobius wallacei* SHARP; 3, *C. cheyi* sp. nov., holotype.

straightly truncated. Pronotum and elytron with lateral margins almost continuous in lateral view. ..... *Anoctus* SHARP (Fig. 1)

5(6) Protibia short and stout, with distal end straightly truncated, anterior margin of the 1st tooth continuous with the truncation. Prothorax with anterior angle deeply and widely excavated on ventral side, the excavation clearly deepened even along lateral margin; external edge of the excavation sharply or distinctly carinate..... *Caccobius* THOMSON

6(5) Protibia mostly elongate or often short, with distal end usually not straightly truncated, anterior margin of the 1st tooth not continuous with the truncation. Prothorax with anterior angle not deeply excavated on ventral side, though sometimes shallowly excavated, if so, the excavation not clearly deepened along lateral margin..... *Onthophagus* LATREILLE

Cyobius cheyi sp. nov.

(Figs. 3–9)

Description of holotype. Male. Length, 6.2 mm; width, 3.5 mm.

Body large-sized, oval, strongly convex above, with pronotum and elytra perfectly continuous in outline, without distinct constriction between them; dorsal side strongly shining and smooth, at a glance glabrous though the elytron is sparsely clothed with very minute recumbent inconspicuous hairs; ventral side also shining and smooth, almost glabrous except for hairy posterior portion of prosternum, lateral portion of metasternum and narrow lateral portions of abdominal sternites; anterior and lateral margins of head, lateral margin of pronotum, and basal two-thirds of elytron sparsely fringed with short white hairs. Color black, with mouth organs, palpi, anterior portion of head, and legs more or less reddish brown; antennae yellowish brown.

Head transverse, about 1.61 times as wide as long, transversely depressed along anterior margin and also on frons; clypeus evenly produced forwards though less strongly produced at the middle than in *C. wallacei*, with clypeal margin somewhat parabolic in outline, finely bordered; clypeal suture with frontal section weakly and very finely carinate, the carina straight in the middle, briefly curved on both sides; genal section of clypeal suture not carinate though finely defined and extending almost prior to the level of anterior margins of eyes; gena strongly produced laterad, with margin finely bordered, genal corner obtusely angulate; vertex almost flat, not distinctly raised on both sides though very slightly depressed at the middle; surface shining and smooth, sparsely and finely punctate, the punctures becoming denser and coarser towards anterior margin.

Pronotum strongly convex, about 1.39 times as wide as long, longer than elytra, with an obsolete median longitudinal depression; anterior margin emarginate, finely bordered though the border slightly broadened at the middle; lateral margin gently rounded, distinctly bordered, the marginal border slightly produced laterad and clearly perceptible near posterior angle; anterior angle strongly produced forwards, with apex

subquadrate; posterior angle very distinct though obtuse; basal margin rounded, finely bordered in the middle, not bordered on both sides; disc rather steeply declivous in anterior third, with upper edge of the declivity faintly ridged in the middle, tuberculate on both sides; each tubercle briefly carinate postero-laterally, slightly depressed towards anterior angle, the depression clearly weaker and shallower than in *C. wallacei*; surface shining and smooth, sparsely and finely punctate in the middle, the punctures becoming denser, coarser and shallower towards marginal portion, especially near posterior angle.

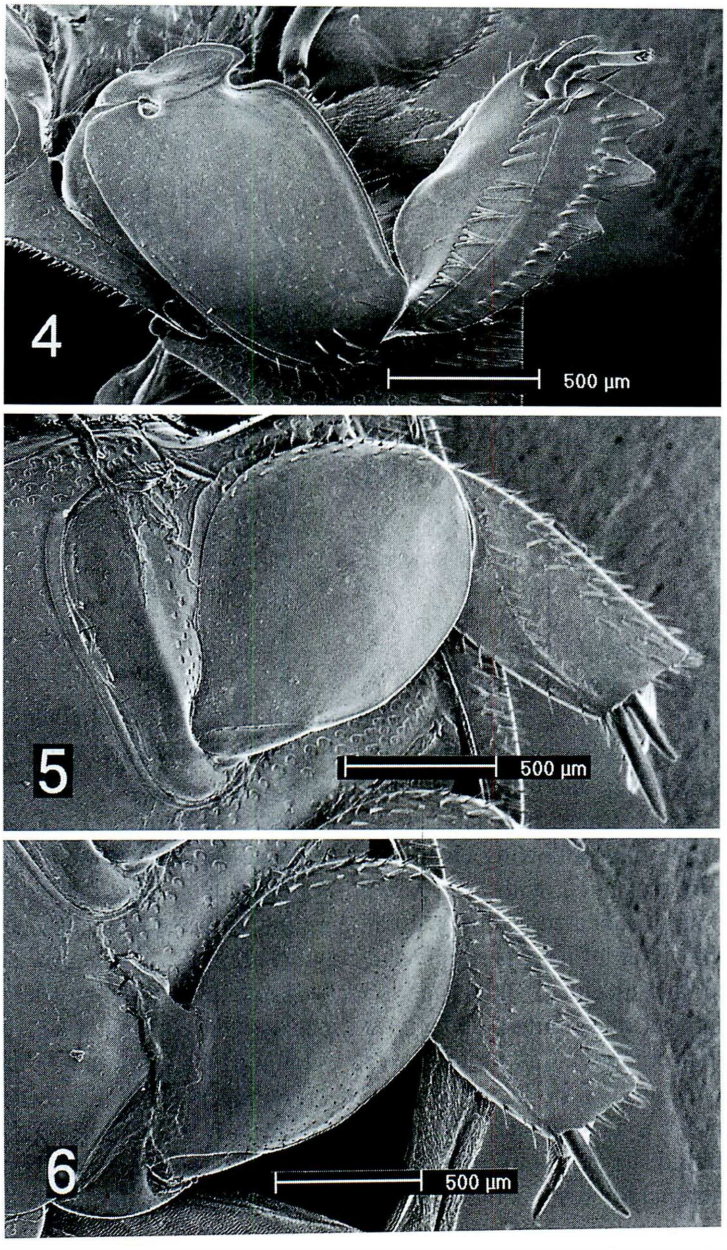
Elytra strongly convex, about 1.47 times as wide as long, with eight striae including one along epipleural margin; each stria finely impressed with strial punctures, the punctures slightly notching both margins of intervals; the 7th stria slightly curved and extending almost to near base; baso-lateral portion almost flat, without a distinct humeral callus; intervals entirely flat, shining and fairly smooth, very sparsely scattered with very fine punctures, each puncture bearing a recumbent, rather long, and minute hair.

Pygidium gently and rather evenly convex, not distinctly carinate at base, shining and smooth, fairly sparsely and very finely punctate. Prothorax with anterior angle deeply excavated on ventral side. Metasternum sparsely and finely punctate, the punctures becoming a little coarser in front and behind; lateral portion densely, coarsely, and shallowly punctate, some punctures near lateral margin bearing a short recumbent hair. Abdomen with apparently six sternites; the 1st sternite arranged with two transverse rows of small punctures, the 2nd to 5th with a single transverse row at the middle though the punctures increase in number at sides and each of them bears a short recumbent hair, the 6th scattered with similar punctures. Profemur very broad, about 1.69 times as long as wide, shining and smooth, sparsely and finely punctate. Meso- and metafemora almost subcircular in outline, shining and smooth, sparsely and finely punctate, the former about 1.20 times as long as wide, the latter about 1.56 times as long as wide. Protibia very broad, with four small external teeth, the 1st tooth sharp, the 2nd a little larger than the 1st, the 3rd a little small, the 4th almost obsolete; apical margin almost straightly truncated, with median portion slightly swollen; apical inner end very slightly produced as a spine; internal margin slightly concave at the middle; tarsi small though ordinary in shape. Meso- and metatibiae strongly dilated and plate-like; meso- and metatarsi fairly reduced; mesotarsus about 0.5 mm in length, the basal segment 0.3 mm in length, slightly longer than the remaining segments combined; metatarsus about 0.5 mm in length, the basal segment also about 0.3 mm in length, slightly longer than the remaining segments combined.

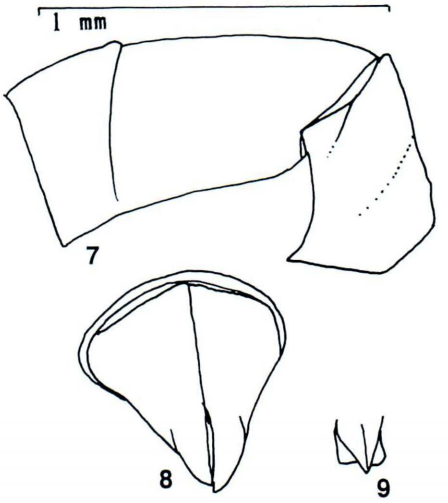
Aedeagus relatively robust; phallobase about 1.0 mm in length, about 0.5 mm in apical width; parameres simple, about 0.6 mm in length, each with slightly and laterally produced apical lobe though hardly visible in dorsal view because of being strongly curved towards base.

Female. Unknown.

Type series. Holotype: male, Gomantong, near Sandakan, Sabah, Borneo, 21~



Figs. 4–6. Legs of *Cyobius cheyi* sp. nov., ventral view, scale 500 μm. —— 4, Front leg; 5, middle leg; 6, hind leg.



Figs. 7–9. Male genitalia of *Cyobius cheyi* sp. nov., holotype, scale 1 mm; 7, aedeagus, lateral view; 8, parameres, dorsal view; 9, apices of parameres, ventro-distal view.

23–II–2005, A. KASHIZAKI leg.

Distribution. Borneo (Sabah).

Etymology. The specific name is dedicated to Dr. CHEY Vun Khen, the Chief of Entomology Section, Sandakan Forest Research Center, who has been giving the last author invaluable help and warm companionship.

Notes. The present new species can be distinguished from *Cyobius wallacei* SHARP (Fig. 2) by the following characteristics: 1) the apical margin of protibia is almost straightly truncated, with a median portion slightly swollen, whereas in *C. wallacei*, it is simply truncated; 2) the internal margin of protibia is slightly concave at the middle; 3) the vertex of head is simple and almost flat, whereas in *C. wallacei*, it is distinctly raised on both sides; 4) the head is sparsely and finely punctate on the vertex; 5) the pronotum is a little longer, about 1.40 times as wide as long, whereas in *C. wallacei*, it is shorter, about 1.51 times as wide as long; 6) the pronotum is more sparsely and finely punctate; 7) the lateral margin of pronotum is distinctly bordered and the marginal border is fairly remarkable behind, whereas in *C. wallacei*, it is not so remarkable behind; 8) the elytra are clearly shorter than the pronotum; 9) in the male genitalia, each parameres has the slightly and laterally produced apical lobe, whereas in *C. wallacei*, they have simple apices.

The genus *Cyobius* apparently resembles the genus *Larhodius* BALTHASAR, 1963, which was assigned to the tribe Dichotomini by MASUMOTO and UTSUNOMIYA (2003) (by the way, a re-evaluation seems needed to us for the taxonomic status of *Larhodius* in relation to *Cyobius*). However, the present new species is also distinct from all the known species of *Larhodius*, *L. calcaratus* (JANSSENS), *L. hashimi* MASUMOTO et

UTSUNOMIYA, *L. maruyamai* MASUMOTO et UTSUNOMIYA, by having the relatively large pronotum.

Specimens compared. *Anoctus laevis* SHARP: 1♀, Mt. Bawang, W. Kalimantan, VII–1991; 1♀, ditto, X–1991; 1ex., Mt. Matang, W. Sarawak, 28–XII–1913, G. E. BRYANT, labelled with "determined by BOUCOMONT, 1921, *Anoctus laevis* SHARP"; 1♀, Singapore, 1901, H. N. RIDLEY labelled with "determined from description, G. J. A."; 2♂♂, Kenyir Lake, Tekak River, Kuala Terrengganu State, West Malaysia, 3～7–III–2002, T. SHIMADA leg. *Cyobius wallacei* SHARP: 1♀, Mt. Bawang, Kalimantan, Indonesia, VII–1991; 1♀, Quop, W. Sarawak, 18–IV–1914, G. E. BRYANT, labelled with "*Cyobius wallacei* SHARP, BOUCOMONT det., 1925" and "*Cyobius wallacei* SHARP, det J. KRIKKEN 1970". *Larhodius maruyamai* MASUMOTO et UTSUNOMIYA: 1 ex., Ulu Gombak, Selangor, Malaysia, 2～18–III–2004, M. MARUYAMA leg. *Larhodius hashimi* MASUMOTO et UTSUNOMIYA: 1 ex. (paratype), Ulu Gombak, Selangor, Malaysia, 21–V～3–VI–2003, M. MARUYAMA leg. We referred to BALTHASAR (1963 a) for *Larhodius calcaratus* (JANSSENS, 1934) because no specimen was available.

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要　　約

越智輝雄・近　雅博・柏崎　昭：ボルネオからのエンマコガネ族の*Cyobius*属の1新種．――ボルネオから*Cyobius*属（エンマコガネ族Onthophagini）の1新種を記載し，*C. cheyi* sp. nov. と名付けた．本種は*Cyobius*属の2種めのメンバーであり，本属の基準種*C. wallacei*からは，前胸背板が鞘翅より長いことによって区別できる．

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New Records of *Leptaulax loebli* KON, JOHKI et ARAYA (Coleoptera, Passalidae) from Laos and Myanmar

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Leptaulax loebli was described from Khao Yai, Thailand by KON *et al.* (2003). Recently, I have had opportunities to examine some specimens of this species from Laos and Myanmar. These are the first records of this species from the localities other than the type locality, Khao Yai, Thailand.

Leptaulax loebli KON, JOHKI et ARAYA

Leptaulax loebli KON, JOHKI et ARAYA, 2003, Jpn. J. syst. Ent., **9**, p. 181; type locality: Khao Yai, Thailand.

Specimens examined. 5♂♂, 3♀♀, Namo, Oudomxay Province, Laos, 6–VII–2004; 4♂♂, 1♀, Mong Hkok, Shan, Myanmar, 22–V–2005.

Distribution. Thailand, Laos (new record), Myanmar (new record).

Notes. There is no noticeable difference between the present specimens recorded from Laos or Myanmar and the type series of *Leptaulax loebli* from Thailand.

Reference

KON, M., Y. JOHKI & K. ARAYA, 2003. A new species of *Leptaulax* (Coleoptera, Passalidae) from Thailand, with a key to the Thai species of *Leptaulax*. *Jpn. J. syst. Ent.*, **9**: 181–185.